



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,957	01/25/2002	Theodore W. Houston	TI-25900.1	9230

23494 7590 09/09/2003

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

THOMAS, TONIAE M

ART UNIT PAPER NUMBER

2822

DATE MAILED: 09/09/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,957

Applicant(s)

HOUSTON ET AL.

Examiner

Toniae M. Thomas

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-11 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) 9, 11, 24 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

1. This action is an official response to the amendment filed on 25 March 2003. The amendment cancelled claims 15, 22, and 23, and added claims 24-26. Currently, claims 9-11 and 24-26 are pending. Claims 9, 11, 24, and 26 have been withdrawn from consideration as being directed to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. *Claims 10 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.*

Contrary to Applicant's claim that claim 10 "refers to the third embodiment as discussed on page 3 of the specification (see Applicant's remarks filed on 30 June 2003 – page 3, third paragraph, lines 6-7)," the specification does not provide support for the claim language, "said channel region having an implanted one of a positive or negative V_T dopant intermediate said source/drain regions and having an implanted one of a

negative or positive V_T dopant adjacent said source/drain regions, the opposite of said dopant in said channel region” as recited in claim 10.¹

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. *Claims 10 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

As discussed above, claim 10 recites the limitation, “said channel region having an implanted one of a positive or negative V_T dopant intermediate said source/drain regions and having an implanted one of a negative or positive V_T dopant adjacent said source/drain regions, the opposite of said dopant in said channel region.” It is not clear how both negative (n-type) dopants and positive (p-type) dopants can be used for the V_T implant.

In addition, claim 10 recites the limitation, “and having an implanted one of a negative or positive V_T dopant adjacent said source/drain regions, the opposite of said dopant in said channel region.” It is not clear which portion of the channel region the phrase “said channel region” refers to: the region intermediate the source/drain regions, or the regions adjacent the source/drain regions.

Claim 10 is interpreted in light of Applicant’s disclosure.

¹ Please note that in the specification, positive means higher threshold voltage (V_T) and not positive type (p-type) dopant.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. *Claims 10 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Sasaki (US 4,371,955 B1).*²

Sasaki discloses a transistor (fig. 2 and accompanying text). The transistor comprises: a semiconductor substrate having first and second spaced apart source and drain regions 22, 23 therein (fig. 2); and a channel region 211 between the source/drain regions in the substrate, the channel region having a relatively low V_T central region 211a between the source/drain regions, and relatively high V_T regions 211b, 211c adjacent to the source/drain regions (col. 2, lines 65-68). The channel region is an implanted low V_T dopant intermediate the source and drain regions 22, 23 and an implanted high V_T dopant adjacent the source and drain regions (col. 2, lines 65-68).

The first source/drain region 22 is a source region, and the second source/drain region 23 is a drain region (col. 2, lines 60-65).

² Sasaki was relied upon in the Office action mailed on 02 June 2003.

Response to Arguments

5. The amendment filed on 30 June 2003 overcame the following objection(s) and/or rejection(s) made of record in the Office action mailed on 02 June 2003: the rejection of claim 25 under 35 USC §112, second paragraph. Accordingly, the "112" rejection has been withdrawn.

6. Applicant's arguments filed 30 June 2003 have been fully considered but they are not persuasive.

Applicant alleges that Sasaki does not teach or suggest a channel region between the source/drain regions in the substrate having a relatively low V_T central region between the source/drain regions, and relatively high V_T regions adjacent to the source/drain regions, the channel region having an implanted one of a positive or negative V_T dopant intermediate source/drain regions and having an implanted one of a negative or positive V_T dopant adjacent the source/drain regions, the opposite of the dopant in the channel region. However, the specification does not provide support for a channel region having an implanted one of a positive or negative V_T dopant intermediate the source/drain regions and having an implanted one of a negative or positive V_T dopant adjacent the source/drain regions, the opposite of the dopant in said channel region."

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2822

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (703) 305-7646. The examiner can normally be reached on Monday through Thursday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JMJ

September 3, 2003


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800